44. (NEW) A method, comprising:

outputting a light beam;

modulating the light beam in accordance with a main signal to output an optical signal; and

shutting down the optical signal when receiving a wavelength alarm relating to a wavelength of the light beam, the wavelength alarm being provided inside an optical sender.

REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

I. STATUS OF THE CLAIMS

Claims 2, 10, 15, 19, 20, 23, 31, 36, 40 and 41 are amended herein.

New claims 43 and 44 are added.

In view of the above, it is respectfully submitted that claims 2-21 and 23-44 are currently pending and under consideration.

II. REJECTION OF CLAIMS 2-21 AND 23-42 UNDER 35 U.S.C. 103(A) AS BEING UNPATENTABLE OVER MIYACHI ET AL. (USP # 5,920,414) IN VIEW OF ROBERTS (USP # 6,031,647)

In item 2, on page 2 of the Office Action, claims 2-21 and 23-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyachi et al. (USP# 5,920,414) in view of Roberts (USP# 6,031,647).

The present invention as recited, for example, in claim 10 as amended herein, relates to an optical sender comprising "means for shutting down said optical signal when receiving a wavelength alarm relating to the wavelength of said light beam."

Miyachi discloses a wavelength division multiplexing optical transmission apparatus and optical repeater. The Examiner states that Miyachi discloses controlling an optical source in response to an alarm, but does not specifically disclose shutting down an optical signal when receiving an alarm.

Therefore, Miyachi fails to teach or suggest the claimed shutting down means as recited in claim 10 of the present application.

Roberts discloses an optical transmission system in which changes in optical power are anticipated and damped by controlling the transmitter output power. In column 5, lines 1-3, Roberts indicates that such changes may come from alarm signals indicating that a particular optical source may be at risk of failing. As shown in Fig. 7 and column 7, lines 17-25, Roberts discloses a damping means 73 alternatively incorporated in a transmitter and controlled by a control means 74, which is responsive to means for determining changes in the optical power.

However, the damping means of Roberts is not the same as the claimed shutting down means as recited in claim 10 of the present application. Moreover, the damping means of Roberts is provided to be controlled by a controlling means when changes in optical power occur, which differs from the claimed shutting down means that shuts down an optical signal when receiving a wavelength alarm. In the present application, an optical signal whose wavelength deviates from a predetermined wavelength range is prevented from being output from the optical sender by the shutting down means (see, for example, page 20, lines 14-24 of the Applicant's specification). Thus, Roberts fails to teach or suggest the claimed shutting down means.

Therefore, Miyachi and Roberts, either alone or in combination, do not teach or suggest the features recited in claim 10 of the present application.

Similar to claim 10, independent claims 19, 20, 31, 40, and 41 recite "shutting down said optical signal when receiving a wavelength alarm relating to the wavelength of said light beam," which distinguish over the teachings of Miyachi and Roberts.

In view of the above, it is respectfully submitted that the rejection is overcome.

III. NEW CLAIMS

Claims 43 and 44 recite "shutting down the optical signal when receiving a wavelength alarm relating to a wavelength of the light beam, the wavelength alarm being provided inside the optical sender," which distinguishes over the cited prior art.

In view of the above, it is respectfully submitted that new claims 43 and 44 patentably distinguish over the cited prior art.

IV. CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that each of the claims patentably distinguishes over the prior art, and therefore defines allowable subject matter. A prompt and favorable reconsideration of the rejection along with an indication of allowability of all pending claims are therefore respectfully requested.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: January 10, 2003

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CERTIFICATE UNDER 37 CFR 1.8(a)

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on January 10 ,20 03

STAAS & HALSEY

By: Wendi Anderson

Date: January 10, 2003

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please AMEND the claims in accordance with the following:

2. (TWICE AMENDED) An optical sender according to claim 10, further comprising:

a circuit for supplying a power to said light source; and

a power supervisory circuit for monitoring on/off of supply of the power to said light source and outputting [said] a power alarm during a given time period from a time the supply of the power to said light source becomes on or off.

3. (AS UNAMENDED) An optical sender according to claim 2, wherein said power supplying circuit comprises a constant current source.

4. (AS ONCE AMENDED) An optical sender according to claim 10, further comprising:

a wavelength monitor for detecting the wavelength of said light beam; and

a circuit for outputting said wavelength alarm when the wavelength detected by said wavelength monitor is deviated from a predetermined range.

5. (AS UNAMENDED) An optical sender according to claim 4, further comprising means for controlling said light source so that the wavelength detected by said wavelength monitor is maintained constant.

6. (AS UNAMENDED) An optical sender according to claim 5, wherein:

said light source comprises a laser diode; and

said controlling means comprises means for controlling the temperature of said laser diode.

7. (AS UNAMENDED) An optical sender according to claim 4, wherein said

wavelength monitor is provided between said light source and said optical modulator.

8. (AS UNAMENDED) An optical sender according, to claim 4, wherein said optical modulator is provided between said light source and said wavelength monitor.

9. (AS ONCE AMENDED) An optical sender according to claim 4, wherein:

said light source comprises a laser diode for outputting a forward beam and a backward beam; and

said forward beam being supplied to said optical modulator, said backward beam being supplied to said wavelength monitor.

10. (TWICE AMENDED) An optical sender comprising:

a light source for outputting a light beam;

an optical modulator for modulating said light beam in accordance with a main signal to output an optical signal; and

means for shutting down said optical signal when receiving [at least one of a power alarm relating to on/off of power supply and] a wavelength alarm relating to the wavelength of said light beam, [wherein said power alarm and] said wavelength alarm [are] <u>being</u> provided inside the optical sender, <u>and</u>

said shutting down means comprising:

an optical element for receiving said optical signal output from said optical modulator; and

means for controlling said optical element so that the transmittance of said optical element is reduced when receiving [at least one of said power alarm and] said wavelength alarm.

11. (AS UNAMENDED) An optical sender according to claim 10, wherein said optical element is a Mach-Zehnder type lithium niobate modulator.

12. (AS UNAMENDED) An optical sender according to claim 10, wherein said optical element is a Mach-Zehnder type semiconductor modulator.

13. (AS UNAMENDED) An optical sender according to claim 10, wherein said optical element is an electroabsorption type modulator.

14. (AS UNAMENDED) An optical sender according to claim 10, wherein said optical element is a semiconductor optical amplifier.

15. (TWICE AMENDED) An optical sender according to claim 10, wherein said shutting down means comprises means for switching the operating point of said optical modulator and shutting down input of said main signal into said optical modulator when receiving [at least one of said power alarm and] said wavelength alarm.

16. (AS UNAMENDED) An optical sender according to claim 15, wherein said optical modulator is a Mach-Zehnder type lithium niobate modulator.

17. (AS UNAMENDED) An optical sender according to claim 15, wherein said optical modulator is a Mach-Zehnder type semiconductor modulator.

18. (AS UNAMENDED) An optical sender according to claim 15, wherein said optical modulator is an electroabsorption type modulator.

19. (THRICE AMENDED) A terminal device for wavelength division multiplexing, comprising:

a plurality of optical senders for outputting optical signals having different wavelengths; and

an optical multiplexer for receiving said optical signals to output wavelength division multiplexed signal light,

wherein each of said optical senders comprises:

a light source for outputting a light beam;

an optical modulator for modulating said light beam in accordance with a main signal to output an optical signal; and

means for shutting down said optical signal when receiving [at least one of a power alarm relating to on/off of power supply and] a wavelength alarm relating to the

wavelength of said light beam, [wherein said power alarm and] said wavelength alarm [are] being provided inside of the respective optical sender,

said shutting down means comprising:

an optical element for receiving said optical signal output from said optical modulator; and

means for controlling said optical element so that the transmittance of said optical element is reduced when receiving [at least one of said power alarm and] said wavelength alarm.

20. (THRICE AMENDED) An optical communication system for wavelength division multiplexing, comprising:

first and second terminal devices; and

an optical fiber transmission line for connecting said first and second terminal devices,

wherein at least one of said first and second terminal devices comprises:

a plurality of optical senders for outputting optical signals having different wavelengths; and

an optical multiplexer for receiving said optical signals to output wavelength division multiplexed signal light,

wherein each of said optical senders comprises:

a light source for outputting a light beam;

an optical modulator for modulating said light beam in accordance with a main signal to output an optical signal; and

means for shutting down said optical signal when receiving [at least one of a power alarm relating to on/off of power supply and] a wavelength alarm relating to the wavelength of said light beam, [wherein said power alarm and] said wavelength alarm [are] being provided inside of the respective optical sender,

said shutting down means comprising:

an optical element for receiving said optical signal output from said optical modulator; and

means for controlling said optical element so that the transmittance of said optical element is reduced when receiving [at least one of said power alarm and] said wavelength alarm.

21. (AS UNAMENDED) An optical communication system according to claim 20, further comprising at least one optical amplifier arranged along said optical fiber transmission line.

23. (TWICE AMENDED) An optical sender according to claim 31, further comprising:

a circuit supplying a power to said light source; and

a power supervisory circuit monitoring on/off of supply of the power to said light source and outputting [said] power alarm during a given time period from a time the supply of the power to said light source becomes on or off.

24. (AS UNAMENDED) An optical sender according to claim 23, wherein said power supplying circuit comprises a constant current source.

25. (AS ONCE AMENDED) An optical sender according to claim 31, further comprising:

a wavelength monitor detecting the wavelength of said light beam; and

a circuit outputting said wavelength alarm when the wavelength detected by said wavelength monitor is deviated from a predetermined range.

26. (AS UNAMENDED) An optical sender according to claim 25, further comprising a first controlling device controlling said light source so that the wavelength detected by said wavelength monitor is maintained constant.

27. (AS UNAMENDED) An optical sender according to claim 26, wherein:

said light source comprises a laser diode; and

said first controlling device comprising a temperature controller controlling the temperature of said laser diode.

28. (AS UNAMENDED) An optical sender according to claim 25, wherein said wavelength monitor is provided between said light source and said optical modulator.

29. (AS UNAMENDED) An optical sender according, to claim 25, wherein said optical modulator is provided between said light source and said wavelength monitor.

30. (AS ONCE AMENDED) An optical sender according to claim 25, wherein:

said light source comprises a laser diode outputting a forward beam and a backward beam; and

said forward beam being supplied to said optical modulator, said backward beam being supplied to said wavelength monitor.

31. (TWICE AMENDED) An optical sender comprising:

a light source outputting a light beam;

an optical modulator modulating said light beam in accordance with a main signal to output an optical signal; and

a shutting down device shutting down said optical signal when receiving [at least one of a power alarm relating to on/off of power supply and] a wavelength alarm relating to the wavelength of said light beam, [wherein said power alarm and] said wavelength alarm [are] being provided inside the optical sender,

said shutting down device comprising:

an optical element receiving said optical signal output from said optical modulator; and

a second controlling device controlling said optical element so that the transmittance of said optical element is reduced when receiving [at least one of said power alarm and] said wavelength alarm.

32. (AS UNAMENDED) An optical sender according to claim 31, wherein said optical element is a Mach-Zehnder type lithium niobate modulator.

33. (AS UNAMENDED) An optical sender according to claim 31, wherein said optical element is a Mach-Zehnder type semiconductor modulator.

34. (AS UNAMENDED) An optical sender according to claim 31, wherein said optical

element is an electroabsorption type modulator.

35. (AS UNAMENDED) An optical sender according to claim 31, wherein said optical element is a semiconductor optical amplifier.

36. (TWICE AMENDED) An optical sender according to claim 31, wherein said shutting down device comprises a switching device switching the operating point of said optical modulator and shutting down input of said main signal into said optical modulator when receiving [at least one of said power alarm and] said wavelength alarm.

37. (AS UNAMENDED) An optical sender according to claim 36, wherein said optical modulator is a Mach-Zehnder type lithium niobate modulator.

38. (AS UNAMENDED) An optical sender according to claim 36, wherein said optical modulator is a Mach-Zehnder type semiconductor modulator.

39. (AS UNAMENDED) An optical sender according to claim 36, wherein said optical modulator is an electroabsorption type modulator.

40. (THRICE AMENDED) A terminal device for wavelength division multiplexing, comprising:

a plurality of optical senders outputting optical signals having different wavelengths; and

an optical multiplexer receiving said optical signals to output wavelength division multiplexed signal light,

wherein each of said optical senders comprises:

a light source outputting a light beam;

an optical modulator modulating said light beam in accordance with a main signal to output an optical signal; and

a shutting down device shutting down said optical signal when receiving [at least one of a power alarm relating to on/off of power supply and] a wavelength alarm relating to the wavelength of said light beam, [wherein said power alarm and] said wavelength alarm [are] <u>being</u> provided inside of the respective optical sender, and said shutting down device comprises:

an optical element receiving said optical signal output from said optical modulator; and

a second controlling device controlling said optical element so that the transmittance of said optical element is reduced when receiving [at least one of said power alarm and] said wavelength alarm.

41. (THRICE AMENDED) An optical communication system for wavelength division multiplexing, comprising:

first and second terminal devices; and

an optical fiber transmission line connecting said first and second terminal devices;

wherein at least one of said first and second terminal devices comprises,

a plurality of optical senders outputting optical signals having different wavelengths; and

an optical multiplexer receiving said optical signals to output wavelength division multiplexed signal light;

wherein each of said optical senders comprises:

a light source outputting a light beam;

an optical modulator modulating said light beam in accordance with a main signal to output an optical signal; and

a shutting down device shutting down said optical signal when receiving [at least one of a power alarm relating to on/off of power supply and] a wavelength alarm relating to the wavelength of said light beam, [wherein said power alarm and] said wavelength alarm [are] <u>being</u> provided inside of the respective optical sender, and said shutting down device comprises:

an optical element receiving said optical signal output from said optical modulator; and

a second controlling device controlling said optical element so that the transmittance of said optical element is reduced when receiving [at least one of said power alarm and] said wavelength alarm.

42. (AS UNAMENDED) An optical communication system according to claim 41, further comprising at least one optical amplifier arranged along said optical fiber transmission

line.

Please ADD the following NEW claims:

43. (NEW) An optical sender, comprising:

a light source outputting a light beam;

an optical modulator modulating the light beam in accordance with a main signal to output an optical signal; and

a shut-down device shutting down the optical signal when receiving a wavelength alarm relating to a wavelength of the light beam, the wavelength alarm being provided inside the optical sender.

44. (NEW) A method, comprising:

outputting a light beam;

modulating the light beam in accordance with a main signal to output an optical signal; and

shutting down the optical signal when receiving a wavelength alarm relating to a wavelength of the light beam, the wavelength alarm being provided inside an optical sender.